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			3722	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/709,043

Applicant(s)

HEMMING ET AL.

Examiner

Erica E. Cadugan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/8/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “linear motor” of claim 16; the “advancing drive” of the headstock of claims 18-19; the specific “hydraulic drive” or “ball screw” for advancing the headstock of claim 19; the “two head stocks supported on the second guide system” of claim 21 (note that as shown, the guide stock 6’ is apparently fixedly attached to the frame, noting that the guides rails 21, 22, of the second guide system do not appear to be present on the side of the frame wherein head-stock 6’ is located and also noting that head-stock 6’ is described in the specification as stationary in paragraph 0021, for example); the two head stocks that are “drivable independently from one another” of claim 22; the “direct drive” of claim 30; the “energy conduits arranged underneath the cover” of claim 33; and the “energy conduits” that “extend between the guide rails of the first and second guide systems” of claim 34; must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, last line, it is unclear (via the use of the indefinite article "a") as set forth in the claim whether "a milling tool" is intended to be the same as or different from the "at least one milling tool" previously set forth in the claim. If it is intended to be the same milling tool, Examiner suggests changing "a milling tool secured on the slide part" in the last line of the claim to language such as --the at least one milling tool being secured on the slide part--.

In claim 7, lines 2-3, "the second guide systems" lacks sufficient antecedent basis in the claim (previously "the second guide system", singular).

In claim 10, lines 3-4, "the two guide shoes" lacks sufficient antecedent basis in the claim (multiple sets of "two guide shoes" previously set forth noting that claim 10 previously set forth "two guide shoes for engaging each one of the guide rails").

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In claim 11, lines 4, “the head stock” lacks sufficient antecedent basis in the claim (previously “at least one head stock”).

In claim 11, last two lines, “the second guides system” lacks sufficient antecedent basis in the claim (previously “the second guide system”).

In claim 12, last line, and in claim 13, last line, it appears that language such as --of the second guide system-- should be inserted after “guide rails” for clarity.

In claim 18, lines 4, “the head stock” lacks sufficient antecedent basis in the claim (previously “at least one head stock”).

In claim 29, line 2, and claim 30, lines 1-2, “the milling tool” lacks sufficient antecedent basis in the claim.

In claim 35, there is no frame of reference provided for determining what is meant by “inclined”, i.e., inclined with respect to what?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

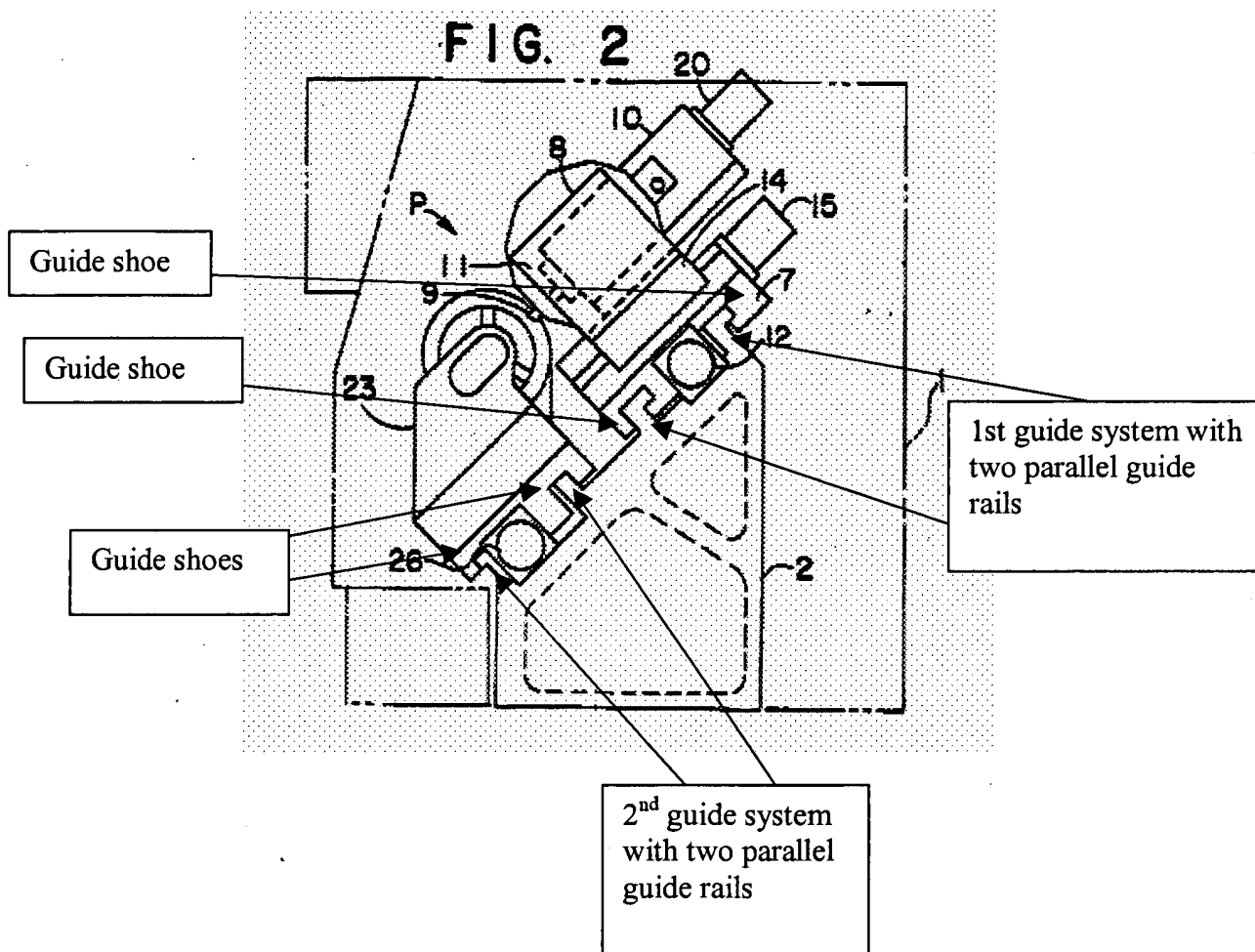
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-9, 11, 13-20, 23-26, 28-29, and 35-36 as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,313,694 to Yonemoto et al.

Yonemoto teaches a machining device including a tool 9 that can be a milling tool (see Figure 8, also col. 7, lines 44-58, for example). Note that the milling tool 9 can be considered to

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be an “internal cutter”, as broadly claimed, in that the milling tool can be used to cut internal portions of a workpiece, such as, for example, to machine sides of a slot in a workpiece.



As shown in the above reproduction of Figure 2, Yonemoto teaches two parallel guide systems, each including two parallel guide rails. Carriage 7 (shown above) is a “compound slide” that moves along the guide rails of the 1st guide system (in the “longitudinal” or Z direction as viewed in Figure 3) via motor 12 and ball screw 13 (Figures 2 and 3, for example. Additionally, carriage 7 includes a first cross slide or “slide part” or “milling unit” (in that it carries milling tool 9 as described previously) 14 that moves transversely to the “longitudinal” Z direction in the X direction via motor 15 and screw 16 (see Figures 2-3, for example).

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Re claim 2, note that, as broadly claimed, the guides of the aforescribed systems are “sliding” guides in that that guide the carriage 7 and cross slide 14 in their linear “sliding” movement.

Re claim 6, as broadly claimed, the stock 23 is considered to be a “head stock”. Note that “head stock” 23 is mounted on the aforescribed “2nd guide system” in an area adjacent to the “compound slide” 7 (see Figures 2-3).

Re claim 7, the stock 23 can alternately be considered to be a “steady rest” (as broadly claimed).

Re claim 9, see the labeled “guide shoes” for the first guide system on the reproduction of Figure 2 above.

Re claims 11 and 13, see the labeled “guide shoes” for the second guide system on the reproduction of Figure 2 above, again noting that (re claim 11) stock 23, as broadly claimed, can be considered the claimed “head stock”, or that stock 23 can alternatively (re claim 13), as broadly claimed, be considered the claimed “steady rest” in that it holds the workpiece “steady”.

Re claim 14, see col. 8, lines 31-38, noting that the guide rails extending in the Z direction of the explicitly-taught duplicate of tool rest 8 can also, as broadly claimed, be considered part of the “first guide system”, noting that such guide rails would also be parallel to the guide rails of the stock 23.

Re claim 15, note that the provision of a further “symmetrical” (col. 8, line 38) tool rest 8 on the opposite side of the axis O as described in col. 8, lines 31-38 would inherently necessitate the use of a further drive, and as such, the two would be independently movable.

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Re claims 16-17, note that either of the aforescribed drives (motor 12 and ball screw 13, or motor 15 and ball screw 16) serve to “advance” their respective driven members (7, 14 respectively).

Re claims 18-19, note that motor 26 and ball screw 27 “advance” the “headstock” 23 (see Figure 3).

Re claim 20, note that stock 3 can additionally be considered a “headstock” as broadly claimed, and that “headstock” 3 is “fixedly attached” to machine frame 2 (see Figure 1, for example).

Re claim 23, note that both of the stocks 3 and 23 are, as broadly claimed, connected with or “fastened on” the frame 2 of the machine.

Re claims 24-25, note that “head stock” 3 includes rotating chuck 4 (Figure 1, col. 6, lines 15-20).

Re claim 26, note that the provision of a symmetrical tool rest 8 on the opposite side of axis O as described previously and in col. 8, lines 31-38 would also include another of the transverse guide systems for enabling the slide 14 to move in the X direction.

Re claims 28-29, see Figure 8, noting that the projecting end wherein the tool 9 is located projects in the transverse X direction past the compound slide 7 in the direction of the stocks 3, 23.

Re claims 35-36, see Figure 2, for example, noting that the side of the bed on which the aforescribed 1st and 2nd guide systems are located is “inclined” with respect to at least the horizontal direction as viewed in Figure 2.

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6. Claims 1-2, 4-9, 11, 13, 16-18, 20, 23-25, 28-29, 31-32, and 35, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by EP 442542 ('542).

'542 teaches a machining apparatus including a first "slide part" 12 in the form of an internal milling unit. This "slide part" moves "transversely" (in the vertical direction as viewed in Figure 4, which is the direction extending into the paper in Figure 5, and which is the horizontal left/right direction as viewed in Figure 6), via hydraulic cylinder 13, with respect to a longitudinally extending "guide system" 2b, 2d on a compound slide 8 (see Figures 4-6 and column 5, line 25 through column 8, line 13, for example). Additionally, a further "guide system" 2a, 2c has supported for movement thereon a further compound slide 14 having a further machining unit 18 (including a further internal milling tool) mounted for performing the same type of transverse movement described previously (via hydraulic cylinder 19), see Figures 4-6.

Re claims 2 and 4, as broadly claimed, the linear movement of the compound slides 8, 14, as well as the perpendicular linear movement of the machining units 12, 18, are "sliding" movements, and thus the guides 2a-2d and the guides (shown in Figure 5) on which the machining units 12, 18 move in the direction into the paper in Fig. 5 are considered to be "sliding guides".

Re claim 6, note that both of the guide systems (2a and 2c, also 2b and 2d) include "headstocks" 3, 4 that are located adjacent the previously-described compound slides.

Re claim 7, note that, for example, if compound slide 8 is considered to be supported on the "first" guide system 2b, 2d, then the headstock 3 that is supported on the other or "second" guide system (2a, 2c) is adjacent the compound slide 8, and can be considered a steady rest, as broadly claimed, since the headstock 3 broadly serves to hold "steady" the workpiece 5.

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Re claim 8, note that 2a and 2c are guide rails of one of the guide systems, and that 2b and 2d are guide rails of the other guide system.

Re claim 9, note that the portion of the compound slide 8 that engages the rail 2b is considered to be a guide shoe, and the portion of the compound slide 8 that engages the rail 2d is considered to be another guide shoe. Thus, the slide 8 has at least two guide shoes engaging the rails 2b, 2d.

Likewise, re claim 11, note that the portion of the headstock 3 that engages rail 2a is considered a “guide shoe” and that the portion of the headstock 3 that engages rail 2c is considered a second “guide shoe”.

Re claim 13, again, noting that, as broadly claimed, the headstock 3 can be considered to be a “steady rest”, the portions of the “steady rest” 13 engaging the guide rails 2a, 2c are considered to be “guide shoes”.

Re claims 16-17, note that motor 9 and ballscrew 10 serve to “advance” the compound slide 8, or alternatively, (re claim 16) note that the compound slide 8 “has” a hydraulic drive 13 that “advances” the machining unit 12 (see Figures 4 and 6, for example).

Re claim 18, note that headstock 3 moves longitudinally along 2a, 2c, and thus, whatever structure that performs this moving is considered to be an “advancing drive” (col. 3, lines 34-40, for example).

Re claims 20 and 23, note that, as broadly claimed, both of the headstocks 3, 4, are “fixedly attached” or “fastened” to the bed 1, at least in the vertical direction as viewed in Figure 4 and also in the vertical direction as viewed in Figure 6.

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Re claim 24, note that headstocks 3 and 4 have chucks 6 and 7, respectively (see Figures 4-5, for example).

Re claim 25, note that '542 teaches that the crank-shaft 5 workpiece held by the chucks 6, 7, is rotated by an index mechanism (see col. 6, lines 44-46, for example).

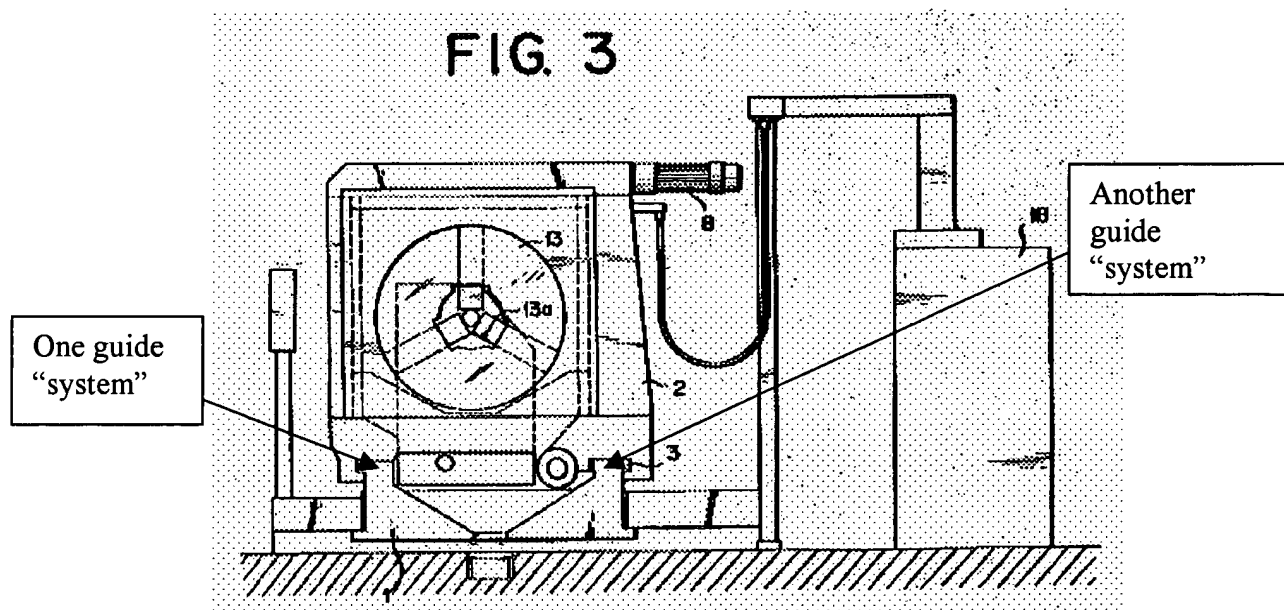
Re claim 28, see Figure 4, noting that 12 projects past 8 in the direction towards 3.

Re claims 31-32, see column 7, lines 27-37.

Re claim 35, note that, as broadly claimed, the vertical side of the bed 1 as viewed in Figure 2 is "inclined" with respect to the horizontal direction.

7. Claims 1-2, 4-7, 14-27, and 35, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 4,305,689 to Yamade et al.

Yamade et al. teaches a machining tool including internal milling cutters 10 (see Figures 2 and 5). "Compound slides" 2 (Figures 2 and 4) move along the parallel first and second "guide systems" of interconnected "guide shoes" and "rails" labeled below in the reproduction of Figure 3 (note that these guide systems are in the left/right horizontal direction as viewed in Fig. 2).



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The milling cutters 10 are mounted on “slide parts” or “milling units” 4 (see Figures 2 and 5) that move in a direction “transverse” (in this case, the vertical direction) to the longitudinal direction of movement of the compound slides 2 (such longitudinal movement is in the left/right direction of Figure 2 along the aforescribed “guide systems”).

Re claim 2, the linear sliding movement of the compound slides 2 along the aforescribed first and second guide systems is a sliding movement, and thus, as broadly claimed, the guides of those systems are “sliding” guides.

Re claim 4, note that the vertical or “transverse” movement of the slide part 4 is guided on a guide system including guides 2a (Figure 5).

Re claim 6, as broadly claimed, the workrests 13 mounted on the compound slides 2 can be considered to be “head stocks” and are located in an area “adjacent” to their respective compound slides 2 (see Figure 2, also col. 2, lines 58-65, for example).

Alternatively, re claim 7, note that those workrests 13 can be considered “steady rests” in that that hold steady the workpiece.

Re claim 15, note that the two compound slides 2 are moveable independently from one another along both of the guide systems via separate motors 20 and screw rods 19 (Figure 2).

Re claim 16, as broadly claimed, the motors 20 and screw rods 19 “advance” the compound slides 2. Alternately, the drive shown in Figure 5 (including motor 8 and screw rods 5) that “transversely” moves the slide 4 is a drive that the compound slides 2 “have” that “advances” the slides 4.

Re claims 18-19, note that as described previously, the work rest 13 can be considered a “head stock”, and that the “head stock” 13 is indirectly “supported on” the aforeshown second

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guide system via the connection of the headstock to the compound slide 2. Thus, the previously-described ball screw 19 and motor 20 can be considered the claimed “advancing” drive of the “head stock” 13 as claimed.

Re claim 20, note that the two “head stocks” 13 are, as broadly claimed, “fixedly attached” to the machine frame 1 in at least the vertical direction (Figs 2-3).

Re claim 21, note that there are two headstocks 13, and that both are supported on both of the aforescribed first and second guide systems (Figs. 2-3).

Re claim 22, note that the two headstocks are independently drivable from one another in the horizontal left/right direction of Figure 2 via the separate motors 20 and ball screws 19 (Figure 2).

Re claim 23, note that the headstocks 13 are (as broadly claimed) “fastened” or attached to the machine frame 1 (see Figure 3, for example).

Re claims 24-25, note that mounted at opposite ends of the bed 1 are columns 30 having thereon “headstocks” 14 which have rotating chucks 15 (see Figure 2, col. 2, line 66 through col. 3, line 4).

Re claim 27, note that the transverse guide systems 2a of the slide parts 4 are located on sides of the compound slides 2 that are facing each other as shown in Figure 2.

Re claim 35, note that, as broadly claimed, the bed 1 has a side that is “inclined” with respect to at least the horizontal direction as viewed in Figure 3.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3, 10, and 12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,313,694 to Yonemoto et al. as applied to claims 1, 8, and 11 above, and further in view of U.S. Pat. No. 4,730,945 to Luther et al., for example.

Yonemoto et al. teaches all aspects of the claimed invention as described above, but does not explicitly teach that the bearing guides of the machine tool are "roller bearing guides" as set forth in claim 3, nor does Yonemoto explicitly teach that there are two guide shoes for engaging each guide rail for each of the compound slide (claim 10) and the head stock (claim 12).

However, Luther et al. teaches the use of roller bearing "guide shoes" 16 (Figures 1-2, 4, for example). Note that, as shown in Figure 1, the guide shoes 16 are mounted such that there is a guide shoe 16 at each corner of the member 10 that is being linearly moved (see also col. 14-17). Note that member 10 can be a rectangular table, a saddle, or other linearly moving structure of a machine tool (see col. 1, lines 5-10, also col. 4, lines 8-13 and col. 1, line 67 through col. 2, line 2). Also note that the guide shoes 16 move linearly over a pair of spaced parallel ways or guide rails 14 (see Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the bearing system taught by Luther et al. wherein a set of roller bearing guides or shoes is provided at each corner of the element or saddle being linearly moved for the generically-shown guide shoe arrangement shown by Yonemoto, such that a roller bearing guide shoe 16 was located at each of the four corners of carriage 7, slide 14, and rest 23, for the purposes of providing a bearing system that enables heavy structural

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components to move with precision and reduced friction (see Luther col. 1, lines 10-30) and that simplifies the maintenance procedure by enabling individual bearings to be replaced without disassembly or reworking of the major machine structural components (Luther, col. 8, lines 9-11).

10. Claims 3, 10, and 12, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 442542 ('542) as applied to claims 1, 8, and 11 above, and further in view of U.S. Pat. No. 4,730,945 to Luther et al., for example.

'542 teaches all aspects of the claimed invention as described above, but does not explicitly teach that the bearing guides of the machine tool are "roller bearing guides" as set forth in claim 3, nor does '542 explicitly teach that there are two guide shoes for engaging each guide rail for each of the compound slide (claim 10) and the head stock (claim 12).

However, Luther et al. teaches the use of roller bearing "guide shoes" 16 (Figures 1-2, 4, for example). Note that, as shown in Figure 1, the guide shoes 16 are mounted such that there is a guide shoe 16 at each corner of the member 10 that is being linearly moved (see also col. 14-17). Note that member 10 can be a rectangular table, a saddle, or other linearly moving structure of a machine tool (see col. 1, lines 5-10, also col. 4, lines 8-13 and col. 1, line 67 through col. 2, line 2). Also note that the guide shoes 16 move linearly over a pair of spaced parallel ways or guide rails 14 (see Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the bearing system taught by Luther et al. wherein a set of roller bearing guides or shoes is provided at each corner of the element or saddle being linearly moved for the generically-shown guide shoe arrangement shown by '542, such that a

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roller bearing guide shoe 16 was located at each of the four corners of slide 8 and headstock 3 of '542's device, for the purposes of providing a bearing system that enables heavy structural components to move with precision and reduced friction (see Luther col. 1, lines 10-30) and that simplifies the maintenance procedure by enabling individual bearings to be replaced without disassembly or reworking of the major machine structural components (Luther, col. 8, lines 9-11).

11. Claim 3, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,305,689 to Yamade et al. as applied to claim 1 above, and further in view of U.S. Pat. No. 4,730,945 to Luther et al., for example.

Yamade al. teaches all aspects of the claimed invention as described above, but does not explicitly teach that the bearing guides of the machine tool are "roller bearing guides" as set forth in claim 3.

However, Luther et al. teaches the use of roller bearing "guide shoes" 16 (Figures 1-2, 4, for example). Note that, as shown in Figure 1, the guide shoes 16 are mounted such that there is a guide shoe 16 at each corner of the member 10 that is being linearly moved (see also col. 14-17). Note that member 10 can be a rectangular table, a saddle, or other linearly moving structure of a machine tool (see col. 1, lines 5-10, also col. 4, lines 8-13 and col. 1, line 67 through col. 2, line 2). Also note that the guide shoes 16 move linearly over a pair of spaced parallel ways or guide rails 14 (see Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted the bearing system taught by Luther et al. wherein a set of roller bearing guides or shoes is provided at each corner of the element or saddle being

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linearly moved for the generically-shown guide shoe arrangement shown by Yamade et al., such that a roller bearing guide shoe 16 was located at each of the four corners of carriage 7, slide 14, and rest 23, for the purposes of providing a bearing system that enables heavy structural components to move with precision and reduced friction (see Luther col. 1, lines 10-30) and that simplifies the maintenance procedure by enabling individual bearings to be replaced without disassembly or reworking of the major machine structural components (Luther, col. 8, lines 9-11).

12. Claim 30, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,313,694 to Yonemoto et al. as applied to claim 1 above.

Yonemoto teaches all aspects of the claimed invention as described above, but is silent as to the specific configuration of the drive for the rotary tool, and thus does not explicitly teach that the drive is a “direct drive” as set forth in claim 30.

However, Examiner takes Official Notice that the use of direct drive motors to drive milling spindles in rotation is well-known and used in the art for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, for example.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted a specific and well-known direct rotary drive for the generic rotary drive taught by Yonemoto for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, as would be readily understood by one having ordinary skill in the art.

13. Claim 30, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,305,689 to Yamade et al. as applied to claim 1 above.

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Yamade teaches all aspects of the claimed invention as described above, but does not teach that the rotary drive of the tool is a "direct drive" as set forth in claim 30.

However, Examiner takes Official Notice that the use of direct drive motors to drive milling spindles in rotation is well-known and used in the art for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, for example.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted a well-known direct rotary drive for the generic rotary drive taught by Yamade for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, as would be readily understood by one having ordinary skill in the art.

14. Claim 19, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 442542 ('542) as applied to claims 1 and 18 above.

'542 teaches all aspects of the claimed invention as described above, and furthermore teaches that the headstocks 3, 4, are longitudinally moveable along their respective guides 2a and 2c, 2b and 2d (col. 3, lines 34-46), but is silent as to how this particular driving movement is performed.

However, it is noted that both ball screw linear drives and hydraulic drives are well-known in the art, as is evidenced by the teachings of '542 (noting that '542 teaches the use of a ball screw drive to move the slide 8 in the longitudinal direction of the bed and a hydraulic drive 13 to move the slide 12 in the direction transverse to the longitudinal direction of the bed).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted one of the well-known linear ball screw drives or

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hydraulic drives for the generic linear drive used to move the headstocks 3, 4 as described previously for the purpose of providing and well-known and thus readily-available technology to perform the linear movement.

15. Claim 30, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 442542 ('542) as applied to claim 1 above.

'542 teaches all aspects of the claimed invention as described above, but does not explicitly teach that the tool drive is a "direct drive" as set forth in claim 30.

However, Examiner takes Official Notice that the use of direct drive motors to drive milling spindles in rotation is well-known and used in the art for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, for example.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted a specific and well-known direct rotary drive for the rotary drive taught by '542 for the purpose of providing a drive that has fewer moving parts than an indirect drive that uses belts or gearing, as would be readily understood by one having ordinary skill in the art.

16. Claims 31-34, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemoto as applied to claim 1 above, and further in view of U.S. Pat. No. 5,807,043 to Blank.

Yonemoto teaches all aspects of the claimed invention as described above, but does not teach any sort of cover for the guide rails.

Blank teaches a telescoping machine tool way cover (such as 20, see Figure 1) that is used to cover the guide ways, as well as the drive (such as screw drive 36, Fig. 1) of any moving

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part of a machine tool (see col. 3, lines 25-64 and col. 5, lines 31-47, noting especially that Blank teaches that the way cover 20 can be used with a variety of machine tools.

Re claims 33-34, note also that Blank further teaches that electrical or hydraulic cables extending from the machine tool to a power source can be arranged on a way platform for being protected by the cover (see col. 1, lines 21-35, noting (re claim 34) that via particular configuration of the cover 20 (which includes channels 38) relative the guide rails (shown in Figure 3 as having guide surfaces 62), in order for such cables to be protected by the cover as described in column 1, they would necessarily have to be located between the guide rails (see Figure 3, also col. 1, lines 21-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the telescoping way covers that cover the guide ways and energy conduits as taught by Blank to Yonemoto's machine such that the various guide ways (including those of the described first and second guide systems) taught by Yonemoto were so covered, for the purpose of protecting the way surfaces and energy conduits from falling debris produced by the machining operation, thus increasing the accuracy of the machining operation (see Blank, col. 1, lines 21-35, for example).

17. Claims 33-34, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over '542 as applied to claim 1 above, and further in view of U.S. Pat. No. 5,807,043 to Blank.

'542 teaches all aspects of the claimed invention as described above, including the telescoping guide covers to cover the guide rails as described previously (col. 7, lines 20-37, for example). However, '542 is silent as to the location of the energy conduits (which inherently

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must exist to power the machine) and thus does not teach that the energy conduits are “arranged underneath the cover” as set forth in claim 33 and are “between the guide rails” as set forth in claim 34.

Blank teaches a telescoping machine tool way cover (such as 20, see Figure 1) that is used to cover the guide ways, as well as the drive (such as screw drive 36, Fig. 1) of any moving part of a machine tool (see col. 3, lines 25-64 and col. 5, lines 31-47, noting especially that Blank teaches that the way cover 20 can be used with a variety of machine tools.

Re claims 33-34, note also that Blank further teaches that electrical or hydraulic cables extending from the machine tool to a power source can be arranged on a way platform for being protected by the cover (see col. 1, lines 21-35, noting (re claim 34) that via the particular configuration of the cover 20 (which includes channels 38) relative the guide rails (shown in Figure 3 as having guide surfaces 62), in order for such cables to be protected by the cover as described in column 1, they would necessarily have to be located between the guide rails (see Figure 3, also col. 1, lines 21-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the inherently-present energy conduits of '542 be located beneath the telescoping guide covers and between the guide rails as taught by Blank to for the purpose of protecting the energy conduits from falling debris produced by the machining operation (see Blank, col. 1, lines 21-35, for example).

18. Claims 31-34, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamade as applied to claim 1 above, and further in view of U.S. Pat. No. 5,807,043 to Blank.

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Yamade teaches all aspects of the claimed invention as described above, but does not teach any sort of cover for the guide rails.

Blank teaches a telescoping machine tool way cover (such as 20, see Figure 1) that is used to cover the guide ways, as well as the drive (such as screw drive 36, Fig. 1) of any moving part of a machine tool (see col. 3, lines 25-64 and col. 5, lines 31-47, noting especially that Blank teaches that the way cover 20 can be used with a variety of machine tools.

Re claims 33-34, note also that Blank further teaches that electrical or hydraulic cables extending from the machine tool to a power source can be arranged on a way platform for being protected by the cover (see col. 1, lines 21-35, noting (re claim 34) that via particular configuration of the cover 20 (which includes channels 38) relative the guide rails (shown in Figure 3 as having guide surfaces 62), in order for such cables to be protected by the cover as described in column 1, they would necessarily have to be located between the guide rails (see Figure 3, also col. 1, lines 21-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the telescoping way covers that cover the guide ways and energy conduits as taught by Blank to Yamade's machine such that the various guide ways (including those of the described first and second guide systems) taught by Yamade were so covered, for the purpose of protecting the way surfaces and energy conduits from falling debris produced by the machining operation, thus increasing the accuracy of the machining operation (see Blank, col. 1, lines 21-35, for example).

Conclusion

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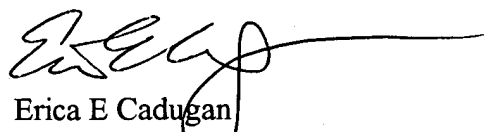
19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474.

The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Boyer D. Ashley can be reached on (571) 272-4502. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Erica E Cadugan
Primary Examiner
Art Unit 3722

eec

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